

## Technical Specifications

- ◆ Powered by 9V battery, non-rechargeable.
- ◆ Maximum current: 50mA
- ◆ Device dimensions:  
179,5 x 46 x 32,2 mm
- ◆ Device weight: 80g
- ◆ Ideal temperature usage:  
-10°C +50°C
- ◆ Cleaning recommendations: To clean, use a soft, slightly damp cloth with household/ rubbing alcohol

### **WARNINGS**

CEMPROTEC is by no means a measuring device  
CEMPROTEC is a detection device that gives tendencies and approximations on radiation.

The human body is likely to directly affect detection. For more accurate detections, hold the device at least 50cm away from you.

The devices are calibrated in an environment at a temperature of 20°C and a humidity level of 45%.

—  
Store CEMPROTEC in a dry place with low humidity.

All modifications to this device are not authorized and will void the warranty.

Keep the device away from children



Evaluation Pollutions Electromagnétique & Conseil  
offers its expertise in the detection and control of  
electromagnetic radiation



## User Guide



# CEMPROTEC 31

## Electromagnetic field detector

High frequencies from 1 MHz to 10 GHz - 3G / 4G / 5G detection



EPE Conseil would like to thank you for purchasing CEMPROTEC, before using it, please read this guide in its entirety, especially the "Warnings" section. This section specifically indicates the terms of use so that CEMPROTEC is used safely and within the warranty limits.



## What is electromagnetic pollution?

There are mainly two "families" of electromagnetic radiation:

**High-frequency radiation:** Generated by popular wireless systems such as connected objects, Wi-Fi, cell phone towers/ antenna arrays, cell phones, fixed wireless phones, Bluetooth, baby-phones, etc.

**Low-frequency radiation:** This concerns all appliances connected to the electrical network, medium and high voltage power lines, electrical panels and motors. Cables and electrical systems can create an electric field and depending on the power, they can also create a magnetic field.

Cemprotec 31 detects high-frequency radiation, which represents the major part of the electromagnetic pollution existing today.



### Inserting the device battery

**Installing the 9V battery (supplied):** The 9V battery must be connected respecting the + and - terminals on the black connector.

**Battery level display:** When switching the device on the battery level is displayed for 3 seconds in the middle row of LEDs, while the other LEDs are off at this point. The LEDs will light up from the red one at the top, stopping at the relevant LED to show the battery level. The green LEDs at the bottom represent a full battery.

**Battery saving mode:** To save power the device will automatically switch itself off after 20 minutes. For frequent usage, it is recommended to use a rechargeable battery.



### Using your detector: there are two main functions!

#### 1. . Detection without acoustic analysis

As soon as the device is switched on, the sound is automatically switched off making it possible to use the detector with discretion.

#### 2. Detection with acoustic analysis

Press and hold the bottom button. This function allows detection of the high-frequency electromagnetic environment with a fine acoustic analysis. To turn this function off, press and hold the bottom button.

## Usage guidance

### Interior or exterior pollution?

The first time you use the device you may be surprised by the level of exposure if it is higher than your expectation.

It is absolutely necessary to identify the cause(s) of radiation to have the clearest possible "picture" of the situation; this will make it possible to apply suitable and effective protection/shielding solutions against the nuisances observed.

To help you quickly identify your electromagnetic exposure:

1. Turn on the device (with or without speakerphone on)
2. Move slowly from room to room, paying particular attention to the areas where you stay for a long time (e.g. the bedroom, living room, office).
3. After, if possible, switch off the electricity in your home for a few moments and then repeat the same detection room by room.
4. If the levels are the same, it means that the radiation is coming from outside. If they are lower, it means that you have an exposure generated by your own electrical installation or system(s) connected to it.
5. For outside radiation, some effective solutions can be used such as paints, fabrics, curtains and plastic films on windows. These products act as screens and greatly reduce the penetration of outside radiation coming inside. However, it is important to choose the right solution according to the type of radiation that is detected, as unfortunately there is no effective solution that works for all types of radiation.

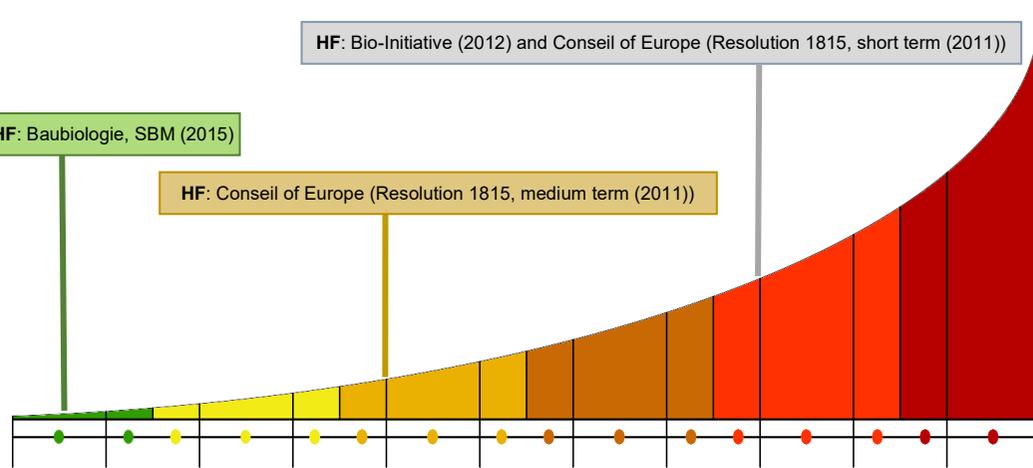
### How to find the polluting devices inside:

It is advisable to use the detector and check the radiation level room by room.

The polluting systems are mainly cordless phones (DECT), WiFi, alarms, and various connected objects. If you unplug each device for a few moments you should immediately notice a decrease in radiation with your detector.

Please note! If you measure an internet box and you have a DECT phone next to it, you must make sure you dissociate the two sources because these two systems have the same type of radiation (high frequency).

## Standard mode with (radiation power indicated by each row of 8 LEDs )



HF	0 V/m	0,08 V/m	0,12 V/m	0,19 V/m	0,27 V/m	0,34 V/m	0,43 V/m	0,53 V/m	0,61 V/m	0,69 V/m	0,75 V/m
HF	0 $\mu\text{W}/\text{m}^2$	15 $\mu\text{W}/\text{m}^2$	40 $\mu\text{W}/\text{m}^2$	100 $\mu\text{W}/\text{m}^2$	200 $\mu\text{W}/\text{m}^2$	300 $\mu\text{W}/\text{m}^2$	500 $\mu\text{W}/\text{m}^2$	750 $\mu\text{W}/\text{m}^2$	1000 $\mu\text{W}/\text{m}^2$	1250 $\mu\text{W}/\text{m}^2$	1500 $\mu\text{W}/\text{m}^2$

Indicative radiation strengths for High Frequencies (HF) in Volt per meter (V / m) and Microwatt per square meter ( $\mu\text{W} / \text{m}^2$ ) depending on the colour of the LEDs lit. The thresholds listed above are recommendations and standards from the corresponding sources (see below).

- Baubiologie MAES-SBM. (2015). Indicative values in Baubiologie (Building Biology) for rest areas. In addition to the standard measurement technique in baubiologie SBM-2015. Retrieved December 2, 2015, from [http://baubiologie.fr/IMG/pdf/valeurs\\_sbm-2015\\_fr.pdf](http://baubiologie.fr/IMG/pdf/valeurs_sbm-2015_fr.pdf). (recommendation)
- BioInitiative. (2012). BioInitiative Report 2012. In A Rationale for Biologically-based Exposure Standards for Low-Intensity Electromagnetic Radiation. Retrieved November 16, 2015, from <http://www.bioinitiative.org/table-of-contents/>. (recommendation)
- Council of Europe. (2011). Resolution 1815 (2011) Final version. In the potential dangers of electromagnetic fields and their effect on the environment. Retrieved November 16, 2015, from <http://assembly.coe.int/nw/xml/XRef/Xref-XML2HTML-en.asp?fileid=17994&>. (recommendation)
- NCRP, (1995) "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields", NCRP Report No.86, Bethesda, Maryland, USA. (norm)
- TCO Development. (2012). TCO-Certified-Displays-6.0. In TCO Development. Retrieved November 16, 2015, from <http://tcodevelopment.com/files/2013/04/TCO-Certified-Displays-6.0.pdf#page=28>. (norm)

## Detection level display

The 3 rows of LEDs display the detected radiation levels:

**High-frequency:** Example of sources > WiFi, cell phones, cell phone antennas, connected objects, baby phones, fixed wireless phones.

The LEDs light up from left to right and from bottom to top. Please find the corresponding LED values on page 4 of this manual.

### How it displays:

- If there is no radiation, the first green LED stays on.
- If radiation is detected, its level is indicated by the LEDs lighting up from **left to right and from bottom to top**.
- The LED's value is explained on page 4 of this manual

### ON / OFF Button

- Press once to turn on the device
- Press and hold to turn off the device

### Button with or without acoustic analysis

- Press and hold to switch the speaker on/ off



Initial State	Action	Final state
Device off	Press the on/off button	The device is switched on
Device on	Press and hold the on-off button	Device is switched off
Loud-speaker off	Press and hold the bottom button	Loud-speaker is switched on
Loud-speaker on	Press and hold the bottom button	Loud-speaker is switched off

## High-frequency detection

**Cemprotec 31** is very practical and allows simultaneous detection of high-frequencies **with or without sound analysis**.

The device makes radiation easily "visible" therefore making the sources more easily identifiable.

It can also be used to verify the protection solutions that have been put in place to reduce exposure to waves.

1. Press the "on-off" button to switch on the device.
2. Hold the detector with your arm slightly extended forward.
3. **Move around slowly** to detect high-frequency fields. The device performs a new detection every two seconds.

NB: To **activate or deactivate** the sound, press and hold the bottom button.

**Cemprotec 31** is equipped with 24 LEDs. This enables enhanced sensitivity detection corresponding to the tolerance thresholds of electro-sensitive people.

The LEDs light up from **LEFT to RIGHT** and from the **BOTTOM to the TOP**.

The detected high-frequency sound corresponds to a FINE ACOUSTIC ANALYSIS which is very useful. This allows the sources to be **identified by a sound proportional to the modulated frequency**. In other words, this function allows the ear to differentiate between different sources of radiation. For example, if it is from the WiFi, a DECT phone, or an antenna.

## Table with the corresponding values for the LED display

The table indicates the LEDs' numerical values for **high-frequency fields** with a detection spectrum of 1 MHz to 10 GHz.

All 24 LEDs are used for wave detection from left to right and from the bottom to the top.

High-frequency level:	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>
in $\mu\text{W}/\text{m}^2$ :	0	1	2,5	10	20	40	50	75	100	140	180	225
in $\text{V}/\text{m}$ :	0	0,02	0,03	0,06	0,09	0,12	0,14	0,17	0,19	0,22	0,25	0,29
Level:	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>
in $\mu\text{W}/\text{m}^2$	300	400	550	750	1000	1250	1500	1750	2000	2250	2500	2750
in $\text{V}/\text{m}$ :	0,33	0,38	0,45	0,53	0,61	0,69	0,75	0,81	0,86	0,92	0,96	1

## Some ideas for limiting your exposure to radiation

1. Use a low-radiation cordless phone for short calls and a corded phone for long calls (if necessary we can refer you to a manufacturer).
2. Set up call forwarding from your mobile phone to a landline phone when you are at home or in the office.
3. If possible, ground your Internet box (making sure you comply with the manufacturer's conditions of use).
4. Favour an internet connection with an Ethernet cable. When you use the cable, remember to turn off the WiFi. For computers not equipped with RJ45 sockets, you can buy small adapters that plug into USB sockets.)
5. Use a timer or a switch on the internet box power supply so you can cut it off at certain times of the day or night if necessary.
6. Use a USB grounding kit for a laptop.
7. Use shielded extension cords and multi-sockets at home or in the office.

